Introduction to lectures upon
Apoplexy, palsy, Coma & Epilepsy.
Feb: 15. 1811.

Dr Benj Rush

Gentlemen,

We have now finished the history and cure of those diseases which affect the blood vessels directly, or which make their first and chief impression upon them. We next took notice of the diseases which affected certain other parts of the body ~~at the same~~ at the same time that they affected the blood-vessels. In order to understand the subjects which comes next in order under our consideration, it will be necessary to remark that the blood vessels are the out posts of the system. From this prominent irritability, they ~~they~~ receive the first attacks of morbid impressions which they discover in the different forms of fever. They are the diseases of the first and most simple states of society. Fevers other diseases are known among savages. From the increase of morbid impressions from

This is the common crisis of a paroxysm of ye from highest grade of Apoplexy, but I shall say hereafter there are cases of it in which there is ~~at~~ an absence of pulse, ~~and~~ of Resp.n and of most of ye signs of life.

Causes direct.

11. 10.

4 Insolation

7. Trauma

12. 14 19. 22. 23. 27.

~~to~~ mental.

3. 15.

Indirect and sympathetic

1 - 2. 3. 26. 6. 22. ~~16. 25.~~ 16. 25.

5. 7. 1. 8. 9. 12. 13. 17. 18 14. 24

19. 20. 21 10. — 24

~~to~~ 28

v The same remote Causes which induce fever in a labourer, or a farmer, or in a young man or Woman induce ~~Gout, Paralysis, Apoplexy~~ Dyspepsia, ~~Diseases of the~~ Colic, bad Stomach - ~~or~~ head ache - or some other ~~nervous~~ Disease ~~of the~~ more connected with the nervous system in a wealthy & luxurious citizens, or in persons advanced in life.

But these nervous diseases =

the Causes of civilized life, diseases spread to other Systems, particularly to the nerves, muscles, brain and mind. After a while the blood repels love their irritability to morbid impressions, or in other words acquire so much of the fibrillar state, that diseases pass by them altogether, or nearly so, and fix themselves exclusively in the nerves, muscles and brain. The diseases which occupy these Systems usually make their appearance in the advanced, or highly civilized state of Society; - times in the modern bills of mortality, ~~from~~ of London fevers which in the time of Dr Sydenham destroyed two thirds of all who died, are now hardly noticed as the instruments of death in that city. By this translation of diseases from the blood vessels to the other Systems of the body, death is kept at bay for a longer time than when fevers were the principal Outlets of human life. ~~but~~ for the human misery is thereby encreased, ~~and~~

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Diseases which ~~[illegible]~~ occupy the place of fevers ~~are more~~ ~~the life suddenly [illegible]~~ are more distressing than the fevers they have banished, and tho' less suddenly fatal, they are finally equally so. In short they substitute chronic diseases to such as are of a short duration — painful and diseases to such as often destroy sensibility, and ~~a~~ lingering passageway of the sudden ~~that which~~ death to extinction of life. It was from this view of the immense difference between natural diseases such as fevers, and the diseases of ~~an~~ civilized, or artificial life, that a physician once said, "God ~~that~~ made acute diseases, but man made all such of them as were of a chronic or artificial nature". —

Our business at present is to treat of those diseases which affect the nerves & muscles in common with the bloodvessels, and here I

V However strange and paradoxical this
Assertion may sound, I believe it to be true, & I shall

shall depart a little from our syllabus by treating of Apoplexy, palsy, Coma, Convulsions, or Epilepsy in the order in which I have ~~now~~ mentioned them. I shall begin my remarks upon all these Diseases by taking notice ~~in the~~ first, that they are all different grades of but one disease. ~~Apoplexy constitutes the highest grade, then comes Palsy, then Coma, then Convulsions, and last Epilepsy. I shall~~ endeavour to support ~~this opinion~~ it by the following facts and arguments.

1 ~~All these diseases~~ They are all induced by a greater or less force of the same direct, indirect & sympathetic causes, to be mentioned hereafter.

2 They all affect the same systems; these are the blood vessels, the brain, the mind, the muscles, and the viscera.

3 ~~They are~~ Several of them are sometimes combined with each other. Thus we see apoplexy & Convulsions at the same time, particularly in drunkards. Again we see them terminate in each other.

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Thus Epilepsy succeeds Apoplexy, and Apoplexy is frequently the last and deadly paroxysm of Epilepsy. Indeed Epilepsy seldom ends fatally in any other way. Further, apoplexy often succeeds palsy and palsy apoplexy. But this is not all, ~~they sometimes~~ Some of them alternate with each other. Thus we see apoplexy and Epilepsy affect the same person two or three times in the course of a few years. & I infer the sameness of all the diseases I have mentioned, and that they differ from each other only in force, from the same morbid appearances occurring in the brain After death from each of them. Of the truth of this assertion you will find many proofs in the Works of Morgagni, Lancisi, and other writers upon morbid Anatomy. This fact ~~is not too~~ is not originally Irvine. It was first discovered by Dr Thomas Willis. In short, Apoplexy, palsy & Coma

V Of the Sameness of the Cause and Nature of Apoplexy & Epilepsy ~~in this cause~~. "Starting in our Sleep" is a striking illustration. The brain in sleep is in what I formerly called a state of "healthy Apoplexy," that is somewhat oppressed with blood. When this oppression comes on suddenly or in greater force than is common or natural the brain recoils, in consequence of which we awake with a starting, or in other words with a convulsion. This reaction of the brain in starting or convulsion changes what would be a coma or apoplexy into a single or transient epileptic fit. That this is the case, is obvious from the snoring which often precedes it, or which occurs during the night when the reaction of the brain and starting do not take place. Now snoring is a symptom of coma & apoplexy, and is uniformly ascribed to a morbid pressure upon the brain.

are nothing but suffocated Convulsions, and Convulsions, or Epilepsy are nothing but Apoplexy, palsy and Coma diffused throughout a part, or the whole of the System. ~~as~~ The Convulsions of Epilepsy are often more severe on one side than the other, which shows ~~the~~ its relationship ~~of~~ to palsy. ~~Their is so these~~ I have one seen them affect one side only without impairing in the smallest degree the Operations of the mind.

V The Explanation I have given of the Unity of Apoplexy, palsy, Coma, Convulsions & Epilepsy, or of ~~their~~ ~~their~~ their being but one disease existing in a suffocated, or diffused state accords strictly with ~~the~~ several other diseases. We observe a suffocated pneumony & suffocated Hippocratis, both of which are diffused by bleeding. We observe also a suffocated Gout in the head, attended with a cool skin, cold feet & languid

pulse. By means of bleeding & stimulating applications to the feet, we ~~diffuse~~ abstract the disease, and diffuse warmth & an active pulse throughout every part of the body.

But how shall we reconcile this opinion I have given of the dangerous of Apoplexy, palsy, Coma & Epilepsy with the occurrence of Epilepsy or convulsions in Infancy & Childhood? in which stages of life, it is said they never alternate with Apoplexy, palsy or Coma? To this question I answer — in 1st place that that the greater strength of the blood vessels and the greater elasticity of the brain in infancy & Childhood (in proportion to their size) enable them to react with more force than in middle life & old age & thus by that means, when unduly oppressed, to save themselves from Apoplexy, palsy &

Coma, by ~~reacting~~ creating Convulsions &
Epilepsy, and hence the frequency & origin
of those Diseases in ~~those~~ the early periods of life.
~~But~~ I took notice of the greater strength of the
blood vessels in Children than in grown people
formerly, and accounted for it for the greater
determination of the blood to the head in the
first years, than in any subsequent years of
human life. But ~~[illegible]~~ great as the relative
strength of the blood vessels of the brain, and
prompt as its reaction is from its greater
relative elasticity, it is not always able to
~~[illegible]~~ ~~the~~ prevent apoplexy, palsy & Coma by
~~reacting~~ ~~[illegible]~~ inducing convulsions, or Epi-
-lepsy, and hence I reply to our Question
2dly that Apoplexy, Coma ~~and paralytic palsy~~
are more common in ~~the~~ infancy, and
Childhood, than in middle life or in Old age.

I a ~~[illegible]~~ which the Dep flays ~~Crowd~~ Fracture

This is evident 1 from in children

Epilepsy in all Cases; ~~for~~ now this flays ~~which~~

~~invariably follows a fit of Epilepsy~~ is no-

-thing else but ~~a fatal dropsy~~ Coma, or

a low degree of Apoplexy. and 2dly from

Apoplexy so generally terminating the acute

diseases of Children. This is most obvious

in the committing fevers, ~~but it occasionally~~ and in the fevers

~~of~~ from Contusions ~~on~~ the head, but

it occurs likewise ~~always~~ from the small pox

measles, hooping Cough, teething and the Cholera

Infantum. This Apoplexy ~~is~~ differs from

the Apoplexy of Adults in being of a more

chronic nature, but its Causes are exactly

the same, and the same results appear in

the brain after death. It occurs in the close

of the ~~a~~ above diseases now and then,

After Convulsions, but it oftener takes place without them, from causes to be mentioned presently. ~~from the vacated state of the blood-vessels~~ ~~Has shown the excitability of the~~ ~~and elasticity of the brain. From these facts~~ ~~we are warranted in believing that Apoplexy is~~

But 3ly ~~Dis~~ If to the cases of Apoplexy in Children that have been mentioned, we add the occasional instances of ~~apoplexy~~ it from causes that act suddenly and instantly extinguish life, which by inducing what Dr Stalls called apoplexia infantilis General of which will be mentioned hereafter, we are warranted in believing that Apoplexy is a more frequent cause of death in children than in grown people. ~~There is a~~ It differs ~~The disease of the former~~ ~~there is a~~ in the former, from the latter ~~from~~ ~~they differ~~ in the following particulars.

1 In Children ~~there is~~ a predisposition to the disease is induced by an exhausted state of the excitability of the ~~blood~~ arteries, and elasticity of

the brain. In Adults and particularly in old people a predisposition to it is induced by an exhausted state of the excitability of the Veins, and by a stricture state of the brain.

2 In ~~being~~ ~~succeeding~~ Children it succeeds most of the diseases of Childhood. In Adults, delirium instead of apoplexy, more frequently ~~also~~ ~~constitutes~~ occurs in the last and fatal stage of their diseases.

3 In ~~being of~~ Children it is of a Chronic nature. In Adults apoplexy when fatal, generally destroys life in a few minutes or hours. and

4th In ~~yielding~~ Children it yields more frequently to the powers of medicine than in Adults. ~~Proving partially~~ I have ascribed this to its being rarely attended with a rupture of a bloodvessel in the brain, or with what I shall hereafter call "extravasation" of blood. in which case it is generally fatal.

~~Due proceed to remark further that~~

Having I hope established the fact that Convulsions are nothing but Apoplexy attended with reaction, I proceed to remark that Convulsions of all kinds are transient, that is they ~~app~~ occur once or twice, and never afterwards, or they are periodical. In this respect you perceive their Affinity to fevers, which occur in a single paroxysm, or in two or more paroxysms, and never occur afterwards, or which occur periodically in the forms of quotidians, tertians, or Quartans ~~fevers~~ which continue when left to themselves thro a whole season, or for several years, or during a whole life. Convulsions from teething, or from the small pox may be considered as a simple attack of our ephemeral fever, or as a

fever of one paroxysm, while Epilepsy may be considered as an obstinate intermittent deeply seated in the constitution, & liable to be excited by as many causes as those which excite paroxysms & relapses of intermitting fevers. Nor does the resemblance of the two diseases stop here. An intermittent was formerly as much an incurable disease as the Epilepsy, and would probably have remained to till this day, had it not been for the discovery of the peruvian Bark. It is true it destroys life somewhat sooner than the Epilepsy from its disorganizing effects upon the liver and other viscera. The brain in this case yields more slowly to decay & disorganization than the viscera of the abdomen from ~~the~~ repeated attacks, ~~of~~ and the

the long duration of Epilepsy. The reason of this must be obvious to you. The viscera possess but a feeble power of reaction compared with the brain, whence the Epilepsy often continues for 20, 30, & over 40 years without inducing any change in the organization of the brain, or even in the faculties, or operations of the mind. That the reaction of the brain saves it from destruction, I infer from the effects of Apoplexy upon it in which no reaction takes place. A single fit of often leaves ~~behind~~ behind it dis==ease of the eyes, or ears, or obstinate head=ache, or a defect of memory, and a third fit often destroys life, by the complete disorgani==zation of the brain.

~~It has~~ From what has been said of ~~Apoplexy~~ the affinity of apoplexy & Epilepsy,

we may explain general facts that occur in those diseases.

It has often been observed that convulsions in the beginning of a fever are seldom attended with any danger. The reason of this is obvious. The brain in the beginning of a fever is too strong to be disorganized by them. It has been observed further, that convulsions in the close of fevers, and of many other diseases are generally fatal. The reason of this is likewise obvious. The excitability of the blood vessels and the elasticity of the brain are so completely exhausted as to prevent their reacting upon the ~~in disease and hence~~ ~~and energy~~ recovering their tone, ~~and hence they are~~ ~~unable or sink under the~~ so as to produce by reacting an equilibrium in the system, &c

V are epileptic – in their close – they are apoplectic. –

hence they succumb, or sink ~~into~~ by a fatal apoplexy, from their being too weak to save themselves by a single fit, or by successive fits of ~~Epi~~ convulsions or in other words of Epilepsy. In a word, The convulsions in the beginning of Epilepsy.

2 It is a remark as ancient as Hippocrates, that a fever succeeding Apoplexy is favourable. — Why is it ~~so~~? — I answer because it shows, the brain to be so ~~healthy~~ unimpaired as to be ~~reactive in the brain~~ ~~Hence the serum~~ ~~of the blood vessels~~ able to react thro' the medium of the blood vessels of the whole System. — It is equally a sign that the brain has escaped disorganization when it reacts by means of convulsions or Epilepsy.

3 It has been remarked that Epilepsy generally terminates in death by a fit of Apoplexy, ~~and~~ or that it goes off gradually between the 50th and 60th years of life. The reason of this

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9 is now obvious to us. In the former case the brain yields from its inability to react in Epilepsy; – in the latter, the ~~tonic~~ blood-vessels, nerves & muscles lose their irritability to such a degree as to refuse to transmit impressions to the brain with sufficient force to produce reaction. The brain too requires ~~so~~ much of the stricture state as to be less easily moved by the impressions which formerly excited it into action.

You will perceive Gent.ᵉⁿ from what has been said upon this interesting subject, fresh proofs of the ~~sim~~ Unity of Disease, and of the simplicity of medicine. Let us cherish these proofs wherever we find them. ~~Bad Science is a mere Chaos~~ Reject the Unity of Disease, and our science becomes a mere Chaos, – ~~a mass of~~ a passage of

folly &

of unmeaning words, and a compound of
ignorance. As error & truth are often illus-
-trated by similes, I shall apply two or
three to the subject before us.

The School boy considers the Creek which
washes his fathers plantation, as a stream
of water made wholly for that purpose,
and unconnected with any other of the
waters of the Globe. ~~The~~ A peasant views the
river ebbing & flowing twice in the twenty four
hours in the same contracted light, and
even the fisherman frequently admits of
no other Ocean than that which receives the
waters of the bay from which he derives his clams
and oysters; while the navigator beholds all the
Creeks and rivers & bays & oceans of the Globe as
intimately connected, and forming one great integral
mass of water. In the School boy, the peasant &
the fisherman ~~you~~ we behold the mysologists! — In the
navigator, we behold the Unitarian in medicine: